

# इंटरनेट

# मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

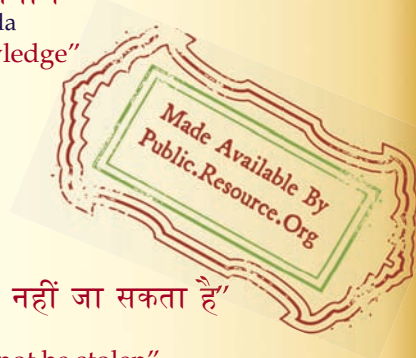
IS 10185 (1982): Data for procurement of worm and wormwheels [PGD 31: Bolts, Nuts and Fasteners Accessories]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard

## DATA FOR PROCUREMENT OF WORM AND WORMWHEELS

**1. Scope** — Specifies the information to be given by the purchaser on all worm and wormwheel drawings and accompanying tables. For each particular case, these should be complete with such information as may be necessary or useful.

**1.1** The terminology and notation on toothed gearing are covered in IS:2458-1965 'Glossary of terms for toothed gearing', IS:2467-1963 'Notation for toothed gearing', and IS:5267-1969 'Glossary of terms for worm gears'.

### 2. Worms

#### 2.1 General Dimensions and Characteristics to be Indicated on the Drawing

- a) External diameter and tolerance;
- b) Length of worm;
- c) Bore diameter with tolerances where applicable;
- d) Locating face with tolerances; and
- e) Surface finish of the tooth flank surfaces and if applicable, of the root surface and of the fillets.

**Note** — The material and heat treatment for the worm shall be given in the title block of the drawing.

**2.2 Information to be Given in a Table** — The following information preferably should be given on the upper right hand corner of the drawing:

- a) Axial module,
- b) Number of threads,
- c) Reference diameter (accurate to 0.001 mm),
- d) Profile according to IS:3734-1966 'Dimensions for worm gearing' (gives the corresponding pressure angle of the cutting tool and the angle of the cutting tool),
- e) Basic form of the flanks,
- f) Tooth depth,
- g) Lead,
- h) Lead angle,
- j) Thread direction (right hand direction is preferred),
- k) Tooth thickness: Basic value and upper and lower deviations (the basic values may be given in two different ways: measurement over pins or balls with the diameter of the pins or balls or measurement of the chord with the distance of the chord to the tip circle),
- m) Backlash, reference (instead of backlash, it is also allowed to give the centre distance without backlash under condition of the nominal shaft angle),
- n) All useful information on tolerances,
- p) Centre distance of the wormgear pair (after assembly), with tolerances,
- q) Number of teeth of the corresponding wormwheel, and
- r) Drawing number of the corresponding wormwheel.

**2.3** The features given above are considered as being essential. Any other useful information should be given to the gear manufacturer for the manufacture and inspection of the teeth as required by the particular form and characteristics of the worm. In particular, the following information may be included:

- a) The necessity of ensuring firm location of the body of the worm on the cutting machine will require that the support and clamping faces (which should be perpendicular to the axis) and their permissible axial run-out should be indicated;
- b) For shafted worms it is necessary to specify the maximum run-out of the surface which will serve as datum for checking the centring before commencement of cutting; and
- c) Checking the accuracy of the teeth may necessitate the indication of certain characteristics or of special dimension and form tolerance for certain elements which will serve as datum for measurement (for example, the tip cylinder).

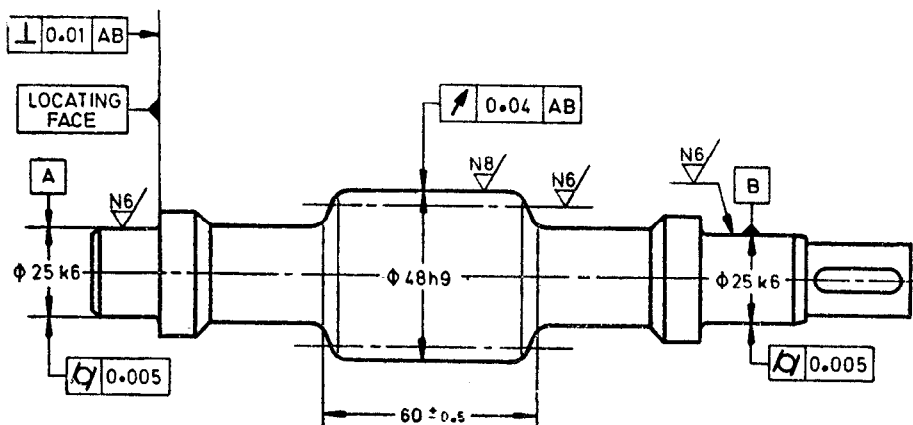
Adopted 27 April 1982

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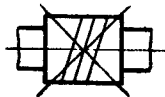
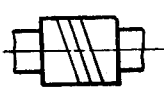
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2.4 Example — A typical example of the drawing and the information to be provided with the drawing is given below:

All dimensions in millimetres.



Characteristics of the teeth

Axial module		$m_x$	4
Number of threads		$z_1$	3
Reference diameter		$d_1$	40.000 mm
Basic rack	Standard		
	Pressure angle	$\alpha$	20°
Basic flank form			K
Tooth depth		$h_1$	8.8 mm
Lead		$p_x$	37.699 mm
Lead angle		$r_1$	16° 42'
Thread direction ( cross whatever is not applicable )			<div>Left</div>  <div>Right</div> 
Tooth thickness	Normal chordal thickness		6.02
	Chordal height		4.02 mm
Backlash, reference		$i$	0.2 mm
Quality class*			
Centre distance		$a$	125 ± 0.02 mm
Wormwheel	Number of teeth	$z_2$	52
	Drawing No.		13 579
**			
*Till such time as an Indian Standard is published on the subject, the quality class shall be subject to agreement between concerned parties.			
**Complementary information which may be necessary or useful.			

### 3. Wormwheels

#### 3.1 General Dimensions and Characteristics to be Mentioned on the Drawing

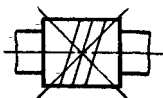

- a) External diameter;
- b) Diameter at root of gorge;
- c) Gorge radius;
- d) Rim width;
- e) Width angle;
- f) Bore diameter and tolerance (or diameter and tolerance for the part of the shaft used for setting on the cutting machine);
- g) Locating face;
- h) Distance between locating face and mid-plane;
- i) Tolerances for dimensions, form and place for the characteristics given; and
- k) Surface finish of the tooth flanks and, if applicable, of the root surface and fillets.

**Note** — The material and heat treatment for the gear blank shall be given in the title block of the drawing.

#### 3.2 Information to be Given in a Table — The following information preferably should be given on the upper right hand corner of the drawing:

- a) Axial module of the worm,
- b) Number of teeth ( in case of a worm with more than one thread a hunting tooth ratio is preferred );
- c) Basic rack of the worm;
- d) Basic flank form;
- e) Reference diameter ( accurate to 0.001 mm );
- f) Tooth depth;
- g) Addendum modification coefficient ( accurate to 0.001 mm with the sign );
- h) All useful information on tolerances;
- i) Number of threads of the worm;
- k) Reference diameter of the worm;
- m) Lead angle of the worm;
- n) Thread direction ( to be given in a diagram );
- p) Centre distance of the worm gear pair ( after putting together, with tolerances ); and
- q) Drawing number of the worm.

[illegible]

Axial module of the worm		$m_x$	4
Number of teeth		$z_2$	52
Reference diameter		$d_2$	208.000 mm
Basic rack	Standard		
	Pressure angle	$\alpha$	20°
Basic flank form of the worm			K
Tooth depth		$h_2$	8.8 mm
Addendum modification coefficient		$x_2$	+ 0.250
Quality class*	Standard		
	Class		3
Number of threads of the worm		$z_1$	40.000 mm
Reference diameter of the worm		$d_1$	16° 42'
Lead angle of the worm		$\gamma_1$	
Thread direction of the worm (cross whatever is not applicable)			<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Left</p>  </div> <div style="text-align: center;"> <p>Right</p>  </div> </div>
Centre distance		a	125 ± 0.02 mm
Drawing number of the worm			24 680

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\*Till such time as an Indian Standard is published on the subject, the quality class shall be subject to agreement between concerned parties.

\*\*Complementary information which may be necessary or useful.

This standard is based on Doc: ISO/TC 60 N 385 'Worm and wormwheels—Information to be given to the manufacturer by the purchaser in order to obtain the worm and wormwheel required, issued by the International Organization for Standardization.